



ISA 2004 –

Rimbach Lecture Series

Automation Unplugged –
Global Shifts in a New Age

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Automation business overview

- Over \$1 billion - 13 companies
 - Siemens, Schneider, GE, ABB, Honeywell, Emerson, Rockwell, Tyco, Yokogawa, Omron, Eaton, Danaher, Invensys
 - Will consolidate to 5 this decade
- \$100m - \$1 billion – only 3-5
 - Divisions of conglomerates
 - Europeans - German 'mittelstand'
 - Exception - Nation Instruments
- 90% – around \$1-10 million



Automation advantages lost

- Core products
 - Features-Advantages-Benefits easily duplicated
 - Quality manufacture of commodity hardware
 - Software easily copied – functional equivalents.
- Automation products are commodities
 - Available from several sources with marginally different features and benefits
 - Low margins – stiff competitions, drastic price reductions - general business decline
 - Recession makes the competition more brutal



Automation Majors strategy

- Shift to solutions/integration
 - Low margins
 - Services intensive
 - Compete with SI customers
- Going offshore to reduce costs
 - Losing technology advantage
 - De-motivating employees
- Consolidation – M&A
 - Pig + pig = more pigs



Technology Shift

- Old technology - commodities
 - PLC, DCS, SCADA
 - Software – HMI, MES
 - Sensors, valves, equipment
- New technology – inflection points
 - Nanotech, MEMS
 - Wireless sensors – pervasive Internet
 - Complex adaptive systems
- Old dinosaurs will die, new leaders will emerge



Productivity is the key

- Productivity is now a global race between regions and nations.
- Those who can make things cheaper, faster, better – win!
- US and Europe losing technology advantage
- Factories & process plants moving
 - Closer to customers
 - Closer to raw materials



Knowledge work - anywhere

- Internet makes physical location irrelevant
 - Low-cost telephone Help lines
 - Availability of trained people
- Knowledge is power
 - US is losing the big advantage
 - Outsourcing moving up the food-chain



US Offshore Outsourcing

- It's NOT cost
 - Better, cheaper, faster
 - Local investment in automation & equipment
 - Availability of trained labor
- Job losses—especially in manufacturing
 - US does not like manufacturing – puts roadblocks
 - Little or no investment in equipment & automation
 - Offshore locations provide BIG tax breaks and assistance



China – Manufacturing

- Manufacturing prowess
 - Good, repetitive quality.
 - Worldwide market-share - 50% of cameras, 30% of air conditioners and televisions, 25% of washing machines, 20% of refrigerators
 - One private Chinese company - 40% of all microwave ovens sold in Europe
 - City of Wenzhou, Eastern China - 70% of the world's metal cigarette lighters
- Wal-mart – Buy \$ 12 billion from China



Chinacoscsm – Hitech looms

- 700,000 engineers a year, 37% of all college graduates
- University system - growing in size and quality
- Engineer pay ranges - \$4,000 to \$8,000/yr.
- New CISCO competitor
- Biotech advances – genome sequencing
- Space technology advances



India in a new century

- World's most populous country (mid-century)
 - Advantage - English-speaking
 - China's pop. growth is under control; India's is not
 - Already the world's largest democracy
- US Software – \$6-8 billion, 60% growth
 - Infosys - 2003 revenue \$750m, profit 25%, growth 38%, Nasdaq market-cap \$11.5 billion
 - Wipro - 2003 revenue \$ 900m, profit 18%, growth 29%, NY stock exchange market-cap \$9 billion



Global HiTech

- Other regions/countries are competing strongly
 - Central & Eastern Europe
 - Ireland
 - Russia
 - Brazil
 - Mexico
- US steadily losing advantage in many key technologies



World competition brews

- Third-world
 - Hungry
 - Innovative
 - Competitive
- Fundamental problem
 - you cannot simulate hunger
- Big offshore tax-holidays to lure shifts



Jobless recovery

- Offshore outsourcing – small impact
 - Only 300,000 (15%) of jobs lost
- Unemployment caused by increased productivity
 - Automation has reduced headcount
 - Computers & Internet



US Govt. involvement

- Govt. assistance programs inhibit new hiring
 - Insurance and other overheads
 - Equal opportunity protection
 - OSHA & environmental restrictions
- Maintaining American jobs
 - Tax breaks – minimal advantage
 - Not a level playing field – trade subsidies
- US is preoccupied with terrorism
 - Cost exceeds \$1 trillion



Outsourcing Solutions

- Use the best resources of the global village to build business
 - Focus on building the right technology & solutions – the end result.
 - Outsource “picks, shovels, rakes & hoes” – build the railroad
- Unions
 - Too restrictive and protective
 - Stop subsidies and adversarial posture
 - Compete.



Keys for success

- Proprietary products
 - Customer productivity important
 - Continuous upgrade to maintain leadership.
 - Outsourcing is irrelevant – productivity is the key.
- High-value-added
 - Proprietary knowledge
 - Tailored to specific customer needs.
- Go global – think local
 - Special needs, custom requirements must be handled locally
 - Partnership and proximity.



Outsourcing Panel session

- Debunking the Myths:
The Good, the Bad,
and the Future of Outsourcing
- 11:45 am – Room 301

Panelists:

- Jim Pinto – Chair
- Dick Morley – Industry guru
- Walt Boyes – Editor CONTROL magazine
- Jim Teegarden – Valpers Partners



Futures prognostications

- The “good old days” will not return
 - We have NOT “found the bottom”
- Future is already here – it’s exciting
 - Not just a reflection of the Past
- Change is good – ride the waves
 - Look for inflection points



Capitalism - short-term goals

- The Achilles heel of Capitalism
 - Selling the knowledge advantage with a short-term profit motive
- Old globalization was “cheap labor”
 - New globalization is “knowledge”
- Up into the 1990s, few perceived how globalization and free trade trends would cause massive disruptions in where and how the world’s goods are produced



China – new world power

- Capacity to launch nuclear weapons on intercontinental missiles
- Space technology
 - Orbital communications, GPS satellites
 - Military surveillance
 - Seriously affect commercial and security aspects
- NASA - high costs price US out of outer space
- Limited US ability to control militaristic advances
- Long term (Political) problem with China



McWorld vs Tribalism

- Growth of multi-nationals
 - Pure profit motive, sell consumerism
 - No cultural context
 - Integration and uniformity
 - No allegiance to any specific country
 - Too much political power
- Tribalism
 - Culture is pitted against culture, people against people, tribe against tribe
 - Sub national and ethnic links
 - Terrorism – high cost of control



Future global challenges

- Global energy problems
 - Energy independence
 - Nuclear energy
- Environmental concerns
 - Water
 - Waste
 - Humanitarian dilemmas
- Religious Extremism
 - Tolerance & understanding to counter terrorism



Web Visit

- JimPinto.com
 - Technology trends
 - Business & Marketing commentary
 - Automation insights & weblogs
 - Hotlinks to hot topics
 - Suggested readings
 - JimPinto.com eNews
 - Contents of book "Automation Unplugged"
 - Copy of these slides